AF/1733
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of	
Masatoshi Arishiro et al.	Group Art Unit: 1733
Application No.: 09/893,399	Examiner: JOHN T. HARAN
Filed: June 29, 2001	Confirmation No.: 6008
For: MANUFACTURING APPARATUS FOR MANUFACTURING ELECTRONIC MONOLITHIC CERAMIC COMPONENTS	Appeal No.:

APPEAL BRIEF

Mail Stop APPEAL BRIEF - PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Date: November 23, 2004

Sir:

This Appeal is from the decision of the Examiner dated July 21, 2004 (Paper No. 20040712) in which claims 1, 3 and 5-9 were finally rejected. A copy of the claims is reproduced in the claims appendix. Additionally, a copy of Figures 1-3 and 7-9 are attached in a drawing appendix.

A check covering the requisite fee under 37 CFR 41.20(b)(2) accompanies this Brief. The Commissioner is authorized to charge any fees that may be required by this paper, and to credit any overpayment, to Deposit Account No. 02-4800.

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I. Real Party in Interest

The present application is assigned to Murata Manufacturing Co., Ltd., who is the real party of interest.

II. Related Appeals and Interferences

There are no known currently pending related appeals or interferences in the subject application.

III. Status of Claims

Claims 1, 3 and 5-9 remain pending in the subject application. Claims 2 and 4 have been canceled and claims 1, 3 and 5-9 are rejected. Claims 1, 3 and 5-9 are being appealed.

IV. Status of Amendments

No amendments have been made to claims 1, 3 and 5-9 subsequent to the final rejection.

V. Summary of Claimed Invention

The present invention relates to manufacturing apparatuses for manufacturing electronic monolithic ceramic components and, more particularly, to a manufacturing apparatus for manufacturing an electronic monolithic ceramic component having a laminate that is formed by laminating a plurality of ceramic green sheets of a plurality of types in a predetermined order. (Page 1, lines 5-10)

FIG. 1 is a plan view showing the layout of major work areas provided by a manufacturing apparatus 1 for manufacturing electronic monolithic ceramic components in accordance with one embodiment of the present invention. (Page 5, lines 12-14)

The manufacturing apparatus 1 includes, as the work areas thereof, a sheet supplier 2, a corner cutter 3, a laminator 4, a compression bonder 5, and a film discharger 6, and the work areas are arranged as shown in FIG. 1. Specific jobs carried out in the work areas 2 through 6 will be discussed later. (Page 5, lines 15-18)

FIG. 2 is similar to FIG. 1, and is a plan view showing the general layout of the manufacturing apparatus 1. FIG. 3 is a front view generally showing the construction of the manufacturing apparatus 1. (Page 5, lines 19-21)

Referring to FIG. 1, the elements shown in FIG. 2 and FIG. 3 are discussed, and the sheet supplier 2 is provided with a rack 7. In the rack 7, a plurality of trays 8 holding ceramic green sheets to be discussed later are arranged in two parallel columns. (Page 5, line 22 through Page 6, line 3)

The corner cutter 3 includes a corner cutter table 9. (Page 6, line 3)

The laminator 4 includes a laminator table 10. (Page 6, line 4)

The compression bonder 5 includes a compression bonder device 11. (Page 6, line 5)

The film discharger 6 includes a film discharge tray 12. (Page 6, line 6)

A tray drawer device 13 is provided to work with the rack 7. (Page 6, line 7)

To convey the ceramic green sheets, a first chucking device 14 and a second chucking device 15 for chucking the ceramic green sheets through vacuum suction for conveyance are arranged. (Page 6, lines 8-10)

The laminator table 10 reciprocatingly moves between the position thereof shown in FIG. 2 and FIG. 3 and the position thereof at the mounting location of the compression bonder device 11, and rails 16 are arranged to guide the movement of the laminator table 10. (Page 6, lines 11-14)

The tray drawer devices 13 are used to draw the trays 8, and rails 17 and 18 are arranged to guide such a drawing operation of the tray drawer device 13. The tray drawer device 13 arranged to work with the rail 18 is not shown in FIG. 2 and FIG. 3. (Page 6, lines 15-17)

The first chucking device 14 reciprocatingly moves between the tray drawer device 13 and the corner cutter table 9, the second chucking device 15 reciprocatingly moves between the corner cutter table 9 and the laminator table 10, and a rail 19 is provided to guide the movements of these devices. (Page 6, lines 18-21)

The ceramic green sheets 20 subjected to the above-described processes are sorted according to the type of process and the thickness thereof, and are placed into the respective trays 8 as shown in FIG. 7 and FIG. 8, and the trays 8 are set in

vertical columns in the rack 7. As already discussed, a plurality of trays 8 is vertically set in two columns in the rack 7 as best seen from FIG. 7. (Page 9, lines 12-16)

The rack 7 is housed in a frame 28, and is vertically raised and lowered using a lift mechanism (not shown). With the rack 7 raised and lowered, a particular tray 8 is moved to a predetermined level. Each of the trays 8 holds a plurality of ceramic green sheets 20 of the same type. By laminating ceramic green sheets held in a plurality of trays 8 in a predetermined order, a laminate of a desired electronic monolithic ceramic component is produced. (Page 9, lines 17-22)

Referring to FIG. 7, the utilization efficiency of area is increased by setting a plurality of trays 8 in the rack 7, and without the need for increasing the area of the sheet supplier, the manufacturing apparatus handles a diversity of ceramic green sheets 20 to produce a desired electronic monolithic ceramic component.(Page 9, line 23 through Page 10, line 2)

In the embodiment shown, the plurality of trays 8 is arranged in two columns in the rack 7, but the number of columns may be one or may be three in the rack 7. (Page 10, lines 3-5)

To pick up a desired ceramic green sheet 20, the tray drawer device 13 draws a particular tray 8 holding a desired ceramic green sheet 20 as shown in FIG. 7. FIG. 9 shows the tray drawer device 13 in detail. (Page10, lines 6-8)

Referring to FIG. 9, the rack 7 is raised or lowered as represented by an arrow 29 to a level as high as the tray drawer device 13. A chuck 32 travels along a rail 31 that extends in a direction represented by an arrow 30, and at one end of the travel, the chuck 32 is raised in a direction represented by an arrow 33, and pins provided on the end of the chuck 32 are mated with the tray 8. In succession, the

chuck 32 travels in an opposite direction along the rail 31, thereby drawing the tray 8. (Page 10, lines 9-14)

In this state, the previously-mentioned first chucking device 14 vacuum-chucks the topmost ceramic green sheet 20 in the tray 8 to convey it to the corner cutter table 9. (Page 10, lines 15-17)

A ceramic green sheet 20 immediately beneath the topmost ceramic green sheet 20 vacuum-chucked by the first chucking device 14 may electrostatically adhere to the topmost ceramic green sheet 20, and that second ceramic sheet 20 may also be picked up together. To prevent this, the first chucking device 14 has preferably the following construction. (Page 10, lines 18-22)

The chucking device 14 vacuum-chucks the ceramic green sheet 20 near opposed edges of the ceramic green sheet 20 and temporarily places the chucking points closer to each other at the moment of lifting the ceramic green sheet 20 to cause the ceramic green sheet 20 to sag. The sagging ceramic green sheet 20 forces the ceramic green sheet 20 therebeneath to separate therefrom. (Page 10, line 23 through Page 11, line 3)

After the first chucking device 14 picks up the ceramic green sheet 20, the chuck 32 travels along the rail 31 to put the tray 8 back to the rack 7. The first chucking device 14 lowers the chuck 32 in the direction represented by the arrow 33, disengages a lock pin 34 from a locking state thereof, and moves along the rail 31 out of the rack 7 to be on standby. (Page 11, lines 4-8)

On standby, the first chucking device 14 is ready to start an operation to draw a next tray 8, and the time required to pick up the ceramic green sheet 20 is thus shortened. (Page 11, lines 9-11)

As described above, the tray 8 is put back into the rack 7 after the desired ceramic green sheet 20 is picked up, and no tray is placed below the conveyance path of the first chucking device 14, and this arrangement reduces the possibility that the ceramic green sheet 20 in the tray 8 is contaminated with dirt falling in the course of conveyance. (Page 11, lines 12-15)

In this embodiment, the ceramic green sheet 20 lined with the carrier film 21 is handled with the carrier film 21 facing upward. Referring to FIG. 7 and FIG. 8, each of the ceramic green sheets 20 held in the tray 8 is thus covered with the carrier film 21. (Page 11, lines 16-18)

When the ceramic green sheet 20 is picked up, a processor unit (not shown) stores beforehand data concerning the types of, the lamination order of, and the number of ceramic green sheets 20 required to produce a laminate of a desired electronic monolithic ceramic component, and the processor thereby causes the tray 8 holding a required ceramic green sheet 20 to be drawn, and the first chucking device 14 to pick up the ceramic green sheets 20 one by one. (Page 11, lines 19-24)

As described above, to manufacture electronic monolithic ceramic components, a sheet supplier for supplying a plurality of ceramic green sheets of a plurality of types in a predetermined order to a laminator for laminating the ceramic green sheets includes a plurality of trays for sorting and holding the plurality of ceramic green sheets of the plurality of types according to the type, and a rack for setting the plurality of trays in a vertical direction in alignment, and for this reason, the utilization efficiency of area in the sheet supplier is high, and the manufacturing

apparatus handles a diversity of ceramic green sheets to produce a desired electronic monolithic ceramic component. (Page 21, lines 10-17)

In accordance with this invention, each of the trays can be drawn from the rack, and the manufacturing apparatus further includes the tray drawer device for drawing the plurality of trays according to a predetermined order, and a conveyor device for picking up a single ceramic green sheet from the drawn tray and then conveying the ceramic green sheet to the laminator, and thus after a desired ceramic green sheet is picked up, the tray is placed in the rack. Since the tray is placed in the rack during the conveyance of the ceramic green sheet by the conveyor device, there is a low possibility that the ceramic green sheet in the tray is contaminated with dirt falling in the course of conveyance. (Page 21, line 18 through Page 22, line 2)

In accordance with the present invention, the rack is raised and lowered in a vertical direction, and the tray drawer device draws a tray which is positioned at a predetermined height through the upward and downward movement of the rack, and the tray drawer device is thus operated at the predetermined height, and components associated with the tray drawer device are of a simple construction. (Page 22, lines 3-7)

VI. Grounds of Rejection to be Reviewed On Appeal

The issue presented for review by the Board of Patent Appeals and Interferences is whether claims 1, 3 and 5-9 were properly rejected under 35 U.S.C. § 103 as being unpatentable over *Yoshimura* (Japanese Reference No. 4-239604) in view of *Takane et al* (Japanese Reference No. 10-321457) and *Baccini* (U.S. Patent No. 6,109,323).

VII. Applicants' Arguments Against the Rejection of the Claims

A. Rejection of Claims 1, 3 and 5-9 under 35 U.S.C. §103

Applicants respectfully submit that the prior art does not show, teach or suggest a sheet supplier including a) a rack for vertically aligning a plurality of trays, b) a drive for driving the rack to be raised and lowered in a vertical direction, c) a tray drawer device for drawing trays from the rack according to a predetermined order and d) rails arranged to guide a tray drawing operation of the tray drawer device as claimed in claims 1, 5 and 6.

Claims 1, 3 and 5-9 were rejected under 35 U.S.C. §103 as being unpatentable over *Yoshimura* (Japanese Reference No. 4-239604) in view of *Takane et al* (Japanese Reference No. 10-321457) and *Baccini* (U.S. Patent No. 6,109,323).

Yoshimura appears to disclose in Figure 1, tray 11, absorbing head 12, and lamination station 13. In the tray 11, the same kind of several ceramic green sheets 16 is housed in a laminated state. The absorbing head 12, as shown by an arrowhead 20, is moved between the tray 11 and the lamination station 13. In other words, as shown on the left of Figure 1, when the absorbing head 12 is positioned above the tray 11, it is displaced downward until the absorbing head contacts with the uppermost green sheet of the ceramic green sheets 16 in the tray 11. At that time, since a vacuum suction is given via the suction holes 17, the uppermost sheet of the ceramic green sheets 16 is adsorbed to the absorbing head 12 by the vacuum suction. Then the absorbing head 12, as shown by an arrowhead 20, is positioned above the lamination station 13 and further displaced downward. Then, the vacuum suction given via the suction holes 14 is released, and the ceramic green sheets 16

absorbed by the absorbing head 12 are placed on the lamination station 13. As shown in Figure 4, several trays 11A, 11B, 11C, 11D, ..., and 11E are arranged, and each same kind of ceramic green sheets 16A, 16B, 16C, 16D, ..., and 16E is housed in a laminated state in each of the trays 11A-11E. Then, using the absorbing head 12 shown in Figure 1, as shown by the arrowhead in Figure 4, the ceramic green sheets 16-16E are absorbed in a prescribed sequence form several trays 11A-11E and transferred up to the lamination station 13, and the ceramic green sheets 16 are laminated on the lamination station.

Thus, *Yoshimura* merely discloses several trays 11 arranged in a plane. Nothing in *Yoshimura* shows, teaches or suggests a rack for vertically aligning a plurality of trays as claimed in claims 1, 5 and 6. Rather, *Yoshimura* merely discloses trays 11 arranged in a plane.

Additionally, *Yoshimura* merely discloses an absorbing head 12 moved between the trays to a lamination station 3. Nothing in *Yoshimura* shows, teaches or suggests a tray drawer device for drawing trays from a rack as claimed in claim 1. Rather, *Yoshimura* merely discloses an absorbing head 12 which moves between the plurality of trays.

Also, since nothing in *Yoshimura* shows, teaches or suggests a rack for vertically aligning the trays or a tray drawer device for drawing the trays from the rack, nothing in *Yoshimura* shows, teaches or suggests rails arranged to guide a tray drawing operation of the tray drawer device as claimed in claims 1, 5 and 6.

Finally, since nothing in *Yoshimura* shows, teaches or suggests a rack for vertically aligning the plurality of trays, nothing in *Yoshimura* shows, teaches or

suggests a drive for driving the rack to be raised and lowered in a vertical direction as claimed in claims 1, 5 and 6.

Takane et al appears to disclose green sheets 10 with the substrate film formed with a variety of print patterns are stored in a large quantity into magazine 31 shown in Figure 4 according to each pattern. Once a prescribed number of green sheets 10 with the substrate film of the kinds required for making a ceramic multilayered component are all stored into magazine 31, said magazine is set to sheet feeding device 30. Sheet feeding device 30 is configured with sheet stocker 32 and sheet unloading device 33. Sheet stocker 32 has many shelves for storing magazines 31. In the present example, they are provided in 3 stages vertically and in 8 rows concentrically in the perimeter direction, and the center shaft is linked to a motor via an attenuator. In addition, sheet unloading device 33 is configured with hoisting device 34 provided outside of sheet stocker 32 and a sheet drawing device 35 mounted on its hoisting saddle which are provided parallel to the storage shelves arranged vertically. Sheet feeding device 30 is capable of storing 24 magazines 31 (31a, 31b, ...), that is, up to 24 kinds of sheets, unloading the sheets from magazines 31 according to a prescribed layering order using the combination of the rotating operation of sheet stocker 32 and the hoisting operation of sheet unloading device 33, and supplying them to layering device 20. Sheets, such as a polyethylene terephthalate sheet or an expanded adhesive sheet which can be peeled off by applying heat, serving as the base for layering (will be referred to as base sheet, hereinafter) are stored in first magazine 31a of sheet feeding device 30 in advance. Sheet feeding device 30 rotates sheet stocker 32 to the position where first magazine 31a faces sheet unloading device 33, and the hoisting device of sheet

unloading device 33 moves to the height where it meets the first slot of first magazine 31a. Sheet drawing device 35 draws 1 sheet from the slot by grabbing the side right in front of it in order to unload it from magazine 31a. Said drawn base sheet is vacuum-sucked by vacuum suction head 37 of sheet inverting-mounting mechanism 36, rotated by 180°, and inverted. The inverted base sheet is mounted onto lower mold 21 by carrier machine 27.

Thus, *Takane et al* merely discloses green sheets stored in slots of a sheet stocker 32. Nothing in *Takane et al* shows, teaches or suggests a rack for vertically aligning a plurality of trays as claimed in claims 1, 5 and 6. Rather, *Takane et al* merely discloses sheet stocker 32 containing a plurality of slots for storing green sheets.

Also, *Takane et al* merely discloses a sheet stocker 32 which is rotated by a sheet feeding device 30. Nothing in *Takane et al* shows, teaches or suggests a drive for driving a rack to be raised and lowered in a vertical direction as claimed in claims 1, 5 and 6. Rather, *Takane et al* merely discloses rotating the sheet stocker 32 by a sheet feeding device 30.

Furthermore, *Takane et al* merely discloses a sheet drawing device 35 which draws one sheet from a slot by grabbing the side of the sheet in front of it in order to unload the sheet from magazine 31. Thus nothing in *Takane et al* shows, teaches or suggests a tray drawer device for drawing trays from the rack and rails for guiding a tray drawing operation of the tray drawer device as claimed in claims 1, 5 and 6. Rather, the sheet drawing device 35 of *Takane et al* grabs a sheet from a slot in order to unload it.

Finally, *Takane et al* merely discloses that the sheet unloading device 33 is moved to the height of the first slot via a hoisting device of the sheet unloading device 33. Thus nothing in *Takane et al* shows, teaches or suggests a drive for driving the rack to be raised and lowered as claimed in claims 1, 5 and 6. Rather, *Takane et al* merely discloses vertically moving a hoisting device so that the sheet unloading device 33 can draw a sheet from a slot of a magazine (i.e., device 33 moves vertically in *Takane et al* and not sheet stocker 32, which only rotates).

Baccini appears to disclose a device to withdraw, superimpose and anchor foils for green-tape circuits. (col. 1, lines 8-10) A device suitable to withdraw, one by one in a pre-set sequence, supports in the form of plates, each of which supports a thin foil of the type employed in green-tape circuits; these supports are arranged in appropriate containers positioned substantially side by side and each container is characterised by holding a particular type of green tape foil. (col. 1, lines 13-19) The device therefore conveys the supports and the relative green-tape foils to at least one alignment station so as to position the green-tape foils correctly in view of a subsequent superimposing of the foils on each other so as to form a multi-layer pack. The green-tape foils thus superimposed in a well defined order and forming a multi-layer pack are then anchored together to form one single whole, for instance by adhesives, or advantageously, but not only, by the anchorage system, or by a microwave welding system, or by an ultrasonic welding system, or else by any other anchorage system suitable for the purpose. (col. 1, lines 33-45) The device includes means able to withdraw in sequence in a pre-set manner a required plurality of supports with their relative green-tape foils; each support is taken from a specific container. (col. 2, lines 31-34)

Thus, *Baccini* merely discloses an automated device to withdraw, superimpose and anchor green tape foils in a set order. Nothing in *Baccini* shows, teaches or suggests a sheet supplier including a) a rack for vertically aligning a plurality of trays, b) a tray drawer device for drawing trays from the rack, c) rails arranged to guide a tray drawing operation of the tray drawer device and d) a drive for driving the rack to be raised and lowered in a vertical direction as claimed in claims 1, 5 and 6. Rather, *Baccini* merely discloses an automated device to withdraw, superimpose and anchor green tape foils in a set order.

Applicants respectfully traverse the Examiner's combination of the references. Nowhere in *Takane et al*, *Yoshimura* or *Baccini* is it shown, taught or suggested that the trays of *Yoshimura* would need a tray drawer device for drawing the trays from a rack. Rather, the combination of *Yoshimura* and *Takane et al* would merely suggest to store each tray of *Yoshimura* on the shelves of the rotatable sheet stocker 32 of *Takane et al*.

Furthermore, neither *Yoshimura* nor *Takane et al* shows, teaches or suggests a tray drawer device and rails to guide the tray drawer device. Applicants respectfully point out that sheets in *Yoshimura* are picked up by an absorbing head while in *Takane et al* the sheets are grabbed by a front edge of the sheet drawing device from a slot. Thus, no tray drawer device is shown, taught or suggested by either reference. Also, no rails for guiding a tray drawer device are shown, taught or suggested.

Applicants additionally traverse the Examiner's statement that moving the drawing device to the rack and moving the rack relative to the drawing device are alternate expedients. Applicants respectfully point out that no tray drawing operation

is shown, taught or suggested by any of the references. Furthermore, the sheet stocker 32 in *Takane et al* is rotatable but not vertically movable. Furthermore, no reference shows, teaches or suggest vertically moving the sheet stocker of *Takane et al* nor is there any suggestion in the references to show why rotating movement of sheet stocker 32 of *Takane et al* should be replaced by vertical movement.

A combination of *Yoshimura, Takane et al*, and *Baccini* would merely suggest a) to place the individual tray trays of *Yoshimura* on the rotatable sheet stocker of *Takane et al*, b) to use the absorbing head 12 of *Yoshimura* in order to pick up the sheets from the trays stored in the rotatable sheet stocker of *Takane et al* while automating the device as taught by *Baccini*. Thus, nothing in the combination of the references shows, teaches or suggests a sheet supplier including a) a rack for vertically aligning the plurality of trays, b) a tray drawer device for drawing trays from the rack, c) rails arranged to guide a tray drawer operation of the tray drawer device and d) a drive for driving the rack to be raised and lowered in a vertical direction as claimed in claims 1, 5 and 6. Therefore, Applicants respectfully request the Honorable Board of Patent Appeals and Interferences reverses the rejection to claims 1, 5 and 6 under 35 U.S.C. § 103. Furthermore, Applicants respectfully request the Board reverses the rejection to claims 3 and 7-9 under 35 U.S.C. § 103 since they depend from claims 1, 5 and 6 and recite additional features.

VIII. Conclusion

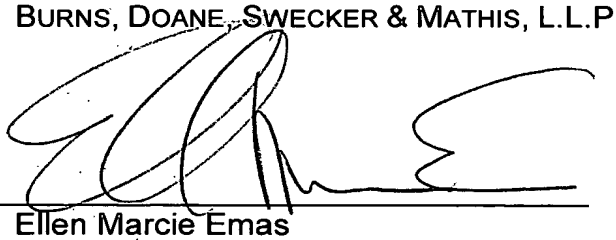
For all of the above-stated reasons, Applicants respectfully request the Honorable Board of Patent Appeals and Interferences reverses the Examiner's decision in this case since Applicants respectfully submit that the final rejection of claims 1, 3 and 5-9 under 35 U.S.C. § 103 is in error.

In the event that this paper is not timely filed within the currently set shortened statutory period, Applicants respectfully petition for an appropriate extension of time. The fees for such extension of time may be charged to our Deposit Account No. 02-4800.

In the event that any additional fees are due with this paper, please charge our Deposit Account No. 02-4800.

Respectfully submitted,

BURNS, DOANE, SWECKER & MATHIS, L.L.P.

Date: November 23, 2004 By: 

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Appendix A – The Pending Claims

1. A manufacturing apparatus for manufacturing electronic monolithic ceramic components, the manufacturing apparatus comprising:

a sheet supplier for supplying a plurality of types of ceramic green sheets in a predetermined order, the sheet supplier including a plurality of trays, each tray being adapted to hold at least one ceramic green sheet, the plurality of ceramic green sheets being held in the plurality of trays according to type, a rack for vertically aligning the plurality of trays, a tray drawer device for drawing trays from the rack according to a predetermined order, and rails arranged to guide a tray drawing operation of the tray drawer device;

a laminator for laminating the plurality of ceramic green sheets supplied by the sheet supplier;

a conveyor device for picking up a single ceramic green sheet from a drawn tray and conveying the single ceramic green sheet to the laminator;

a processor unit adapted to receive data concerning at least a type, an order in lamination, and a quantity of ceramic green sheets necessary for a laminate for a desired electronic monolithic component;

the sheet supplier including a drive for driving the rack to be raised and lowered in a vertical direction; and

the tray drawer device being arranged to draw a particular tray from the rack when, as a result of the rack being at least one of raised and lowered by the drive, the particular tray is positioned at a predetermined height.

3. A manufacturing apparatus for manufacturing electronic monolithic ceramic components according to claim 1, wherein at least some ceramic green sheets of the

same type are stacked one above another in a single tray to form a stack of ceramic green sheets, and the conveyor device comprises a chucking device for chucking a topmost ceramic green sheet of the stack of the ceramic green sheets in the tray for conveyance.

5. A manufacturing apparatus for manufacturing electronic monolithic ceramic components, the manufacturing apparatus comprising:

a sheet supplier for supplying a plurality of types of ceramic green sheets in a predetermined order, the sheet supplier including a plurality of trays, each tray being adapted to hold at least one ceramic green sheet, at least two of the trays holding two different types of ceramic green sheet, respectively, the plurality of ceramic green sheets being held in the plurality of trays according to type, a rack for vertically aligning the plurality of trays, a tray drawer device for drawing the at least two trays from the rack according to a predetermined order, and rails arranged to guide a tray drawing operation of the tray drawer device;

a laminator for laminating the plurality of ceramic green sheets supplied by the sheet supplier;

a conveyor device for picking up a single ceramic green sheet from a drawn tray and conveying the single ceramic green sheet to the laminator;

a processor unit adapted to receive data concerning at least a type, an order in lamination, and a quantity of ceramic green sheets necessary for a laminate for a desired electronic monolithic component;

the sheet supplier including a drive for driving the rack to be raised and lowered in a vertical direction; and

the tray drawer device being arranged to draw a particular tray from the rack when, as a result of the rack being at least one of raised and lowered by the drive, the particular tray is positioned at a predetermined height.

6. A manufacturing apparatus for manufacturing electronic monolithic ceramic components, the manufacturing apparatus comprising:

a sheet supplier for supplying a plurality of types of ceramic green sheets in a predetermined order, the sheet supplier including a plurality of trays, in each tray the ceramic green sheets being sorted according to the respective type thereof and a plurality of ceramic green sheets of the same type being stored on each tray, a rack for vertically aligning the plurality of trays, each of the trays including the plurality of ceramic green sheets of the same type, a tray drawer device for drawing trays from the rack according to a predetermined order, and rails arranged to guide a tray drawing operation of the tray drawer device;

a laminator for laminating the plurality of ceramic green sheets supplied by the sheet supplier;

a conveyor device for picking up a single ceramic green sheet from a drawn tray and conveying the single ceramic green sheet to the laminator;

a processor unit adapted to receive data concerning at least a type, an order in lamination, and a quantity of ceramic green sheets necessary for a laminate for a desired electronic monolithic component;

the sheet supplier including a drive for driving the rack to be raised and lowered in a vertical direction; and

the tray drawer device being arranged to draw a particular tray from the rack when, as a result of the rack being at least one of raised and lowered by the drive, the particular tray is positioned at a predetermined height.

7. A manufacturing apparatus for manufacturing electronic monolithic ceramic components according to claim 1, wherein the rack moves along a single axis.

8. A manufacturing apparatus for manufacturing electronic monolithic ceramic components according to claim 5, wherein the rack moves along a single axis.

9. A manufacturing apparatus for manufacturing electronic monolithic ceramic components according to claim 6, wherein the rack moves along a single axis.

Appendix B – Evidence

(None)

Appendix C – Related Proceedings

(None)

Appendix D – FIGURES 1-3 AND 7-9

1

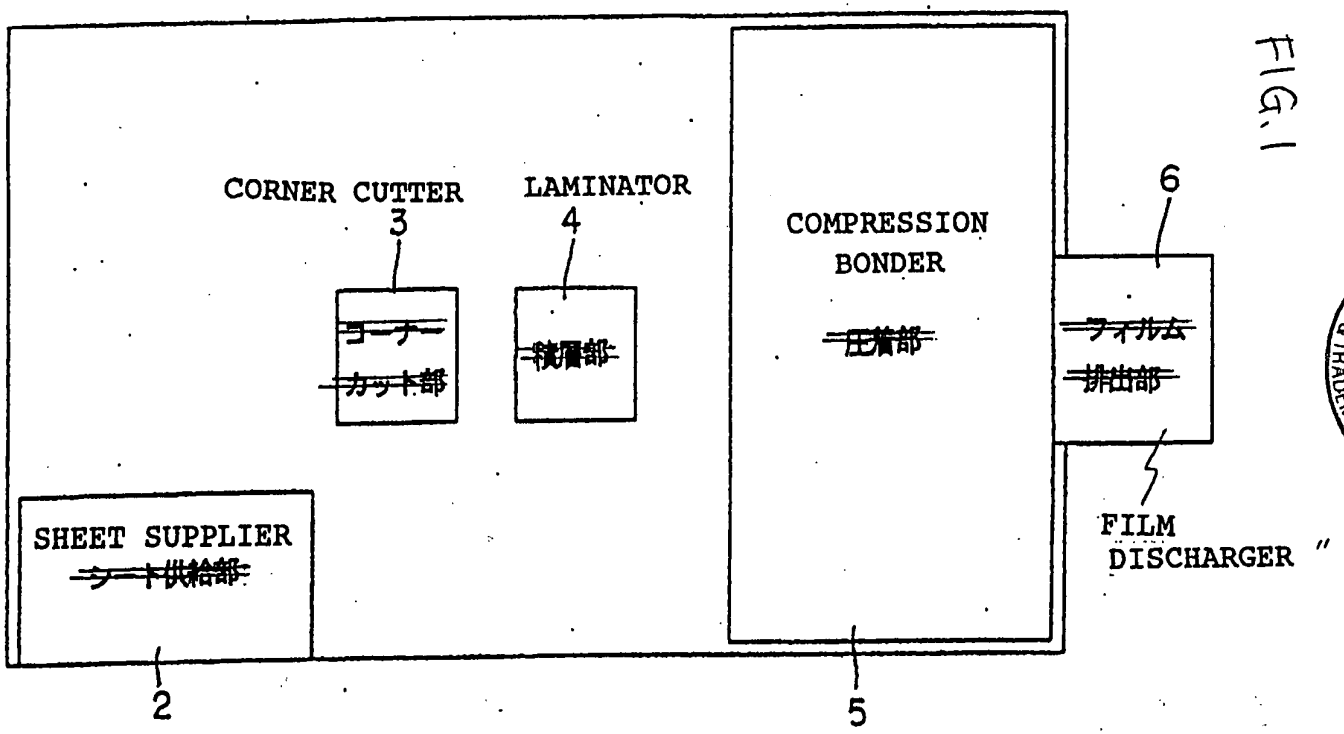

FIG. 1

FIG. 2

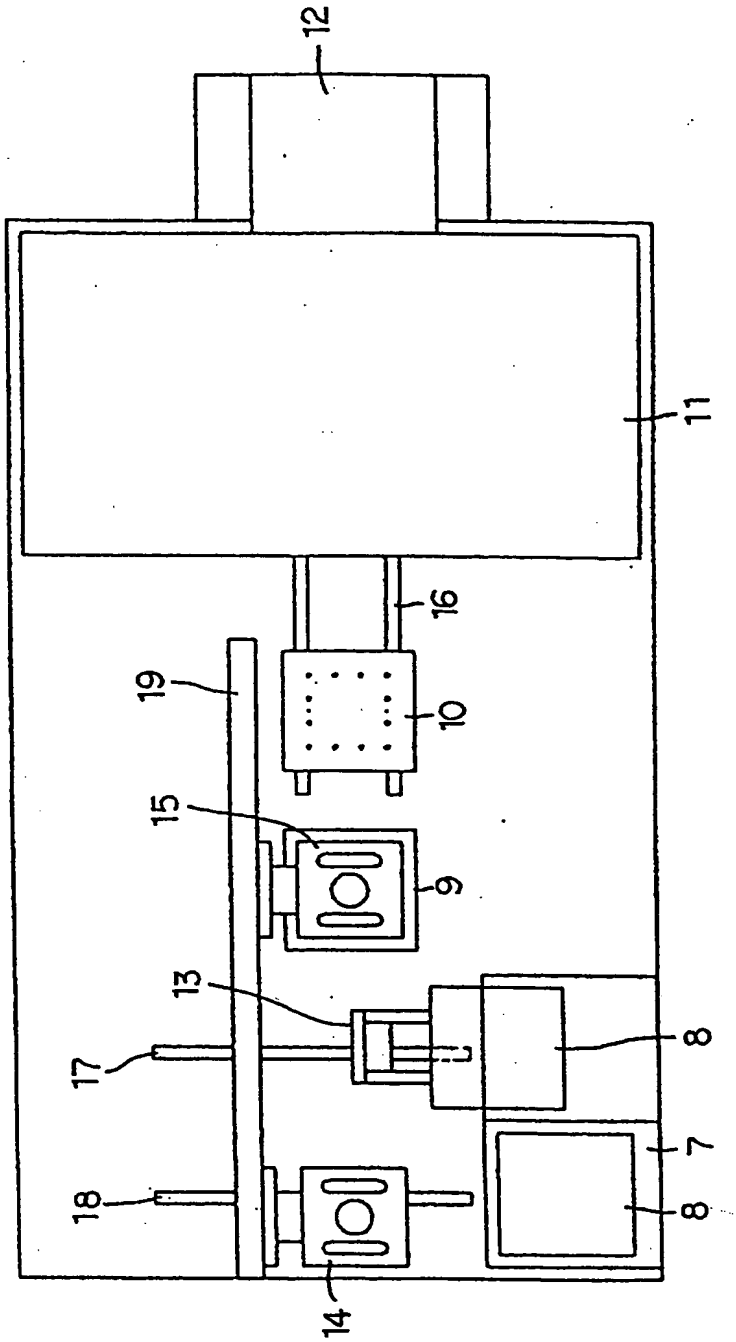

FIG. 3

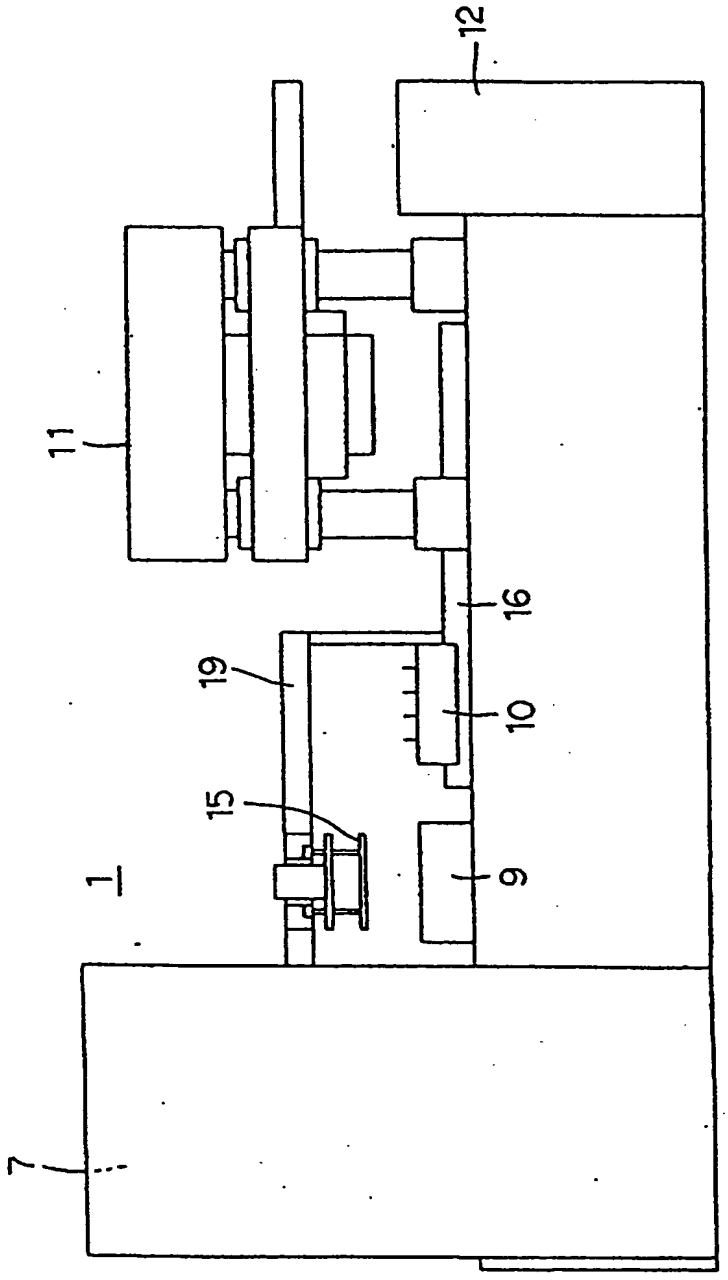

FIG. 6

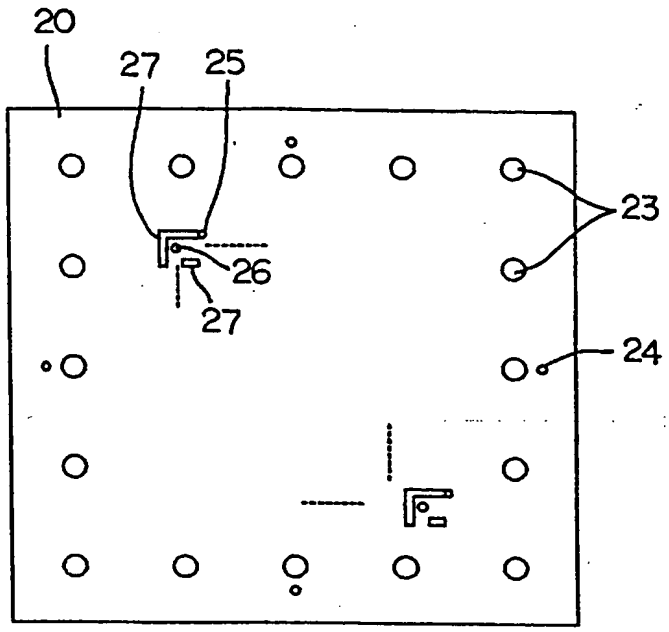

FIG. 7

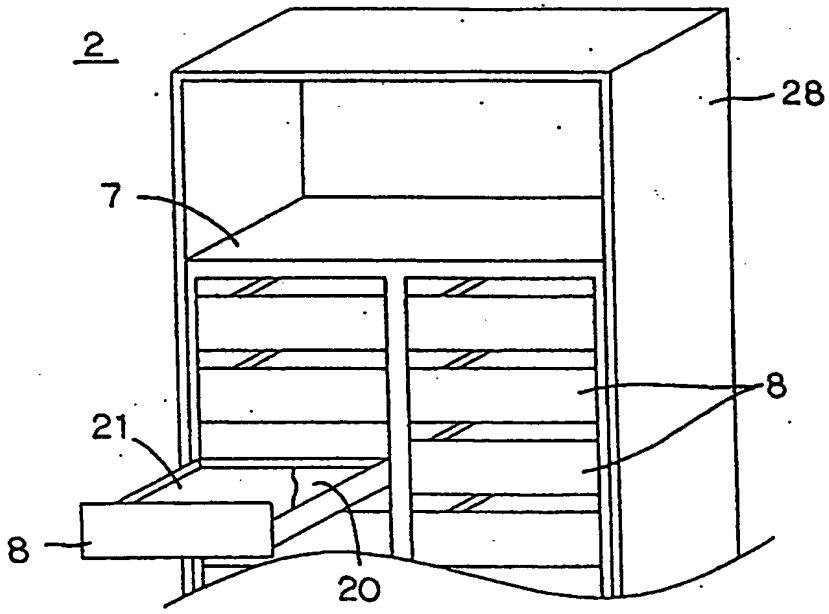

FIG. 8

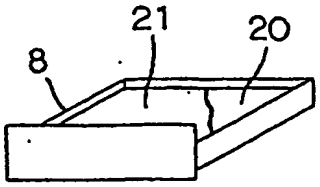

FIG. 9

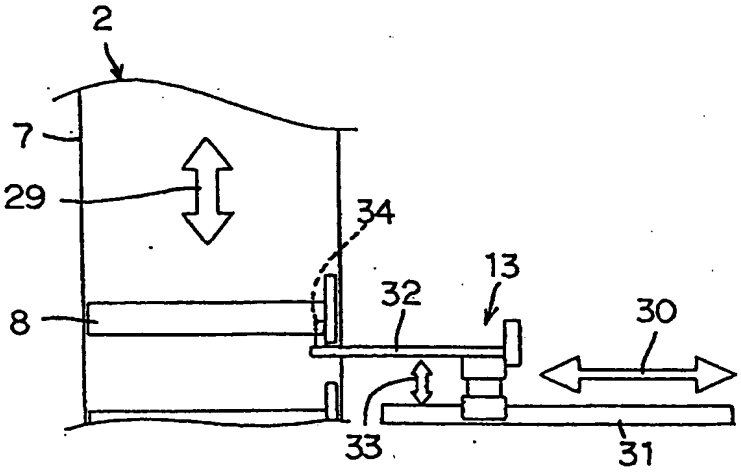

FIG. 10